

The Examiner is respectfully requested to amend the above-identified application as follows:

IN THE CLAIMS:

Please amend Claims 1-4, 6, 9, 10, 13, 14, 16, 19-22, and 24 to read as follows (a marked-up version of the amended claims, showing the changes made thereto, is attached).

1. (Amended) An ink jet recording method for ejecting ink, said method using an ink jet head substrate provided with a heat generating resistor, the heat generating resistor being coated with a protection film, wherein the ink is ejected by a pressure produced by generation of a bubble, the bubble being created by film boiling the ink by applying thermal energy to the ink through the protection film, the thermal energy being generated by a driving signal to the heat generating resistor, said method further comprising:

a' providing a recording mode in which the ink is ejected, the ink having a maximum temperature at the surface of the protection film of 560°C.

2. (Amended) A method according to Claim 1, wherein the maximum temperature applied to the ink is controlled by controlling a pulse width of the driving signal applied to the heat generating resistor.

3. (Amended) A method according to Claim 1, wherein a temperature of the substrate is measured, the driving signal to the heat generating resistor being stopped when a discrimination is made that the maximum temperature may exceed 560°C, based on the temperature of the ink and the driving signal.

a¹
cont.

4. (Amended) A method according to Claim 1, wherein the ink contains a chelate agent.

a²

6. (Amended) A method according to Claim 1, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

9. (Amended) An ink jet head substrate comprising a heat generating resistor, a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to eject the ink,

a³

wherein a maximum temperature at a surface where said protection film comes into contact with the ink is 560°C during driving of said heat generating resistor.

10. (Amended) A substrate according to Claim 9, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

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13. (Amended) An ink jet head comprising an ink jet head substrate including a heat generating resistor, and a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to create a bubble in the ink, therein to eject the ink by a pressure caused by the creation of the bubble,

wherein a maximum temperature at a surface where said protection film comes into contact with the ink is 560°C during driving of said heat generating

resistor.

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cont.
14. (Amended) An ink jet head according to Claim 13, wherein the ink contains a chelate agent.
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16. (Amended) An ink jet head according to Claim 13, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.
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19. (Amended) An ink jet apparatus which includes an ink jet head comprising an ink jet head substrate, said ink jet head substrate including a heat generating resistor, a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to create a bubble in the ink, therein to eject the ink by a pressure caused by the creation of the bubble,

A4

wherein a driving signal control means is provided for making a maximum temperature at a surface of said protection film that comes into contact with the ink 560°C during driving of said heat generating resistor.

20. (Amended) An apparatus according to Claim 19, wherein said driving signal control means controls a pulse width of a driving signal applied to said heat generating resistor to control the maximum temperature applied to the ink.

21. (Amended) An apparatus according to Claim 19, wherein said ink jet head substrate includes a temperature detecting element for measuring a temperature of